AD-A239 575

ARI Research Note 91-84

A Training Strategy for Operational Field Test Data Collectors

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June 1991

91-07768

United States Army
Research Institute for the Behavioral and Social Sciences

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS --
2a. SECURITY CLASSIFICATION AUTHORITY --	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE --	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ARI Research Note 91-84	5. MONITORING ORGANIZATION REPORT NUMBER(S) --
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Research Institute 6b. OFFICE SYMBOL (If applicable) PERI-SB	7a. NAME OF MONITORING ORGANIZATION --
6c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600	7b. ADDRESS (City, State, and ZIP Code) --
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences 8b. OFFICE SYMBOL (If applicable) PERI-S	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER --
8c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. 63007A; PROJECT NO. 793; TASK NO. 1201; WORK UNIT ACCESSION NO. H03

11. TITLE (Include Security Classification)
A Training Strategy for Operational Field Test Data Collectors

12. PERSONAL AUTHOR(S)
Silver, Joan Dietrich

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 89/07 TO 91/04	1991, June	55

16. SUPPLEMENTARY NOTATION
--

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Line-of-Sight-Forward-Heavy (LOS-F-H) Force Development Test and Experimentation (FDTE) Video data reducers (Continued)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This research note describes a training strategy designed for operational field tests of MANPRINT video reducers. It was developed for and implemented during the Line-of-Sight-Forward-Heavy Force Development Test and Experimentation (Phase II). The training consists of three phases: (1) system overview, (2) data collection process overview training, and (3) job-specific training. The strategy is designed to provide a systematic approach to the training challenges presented by use of video tapes for training.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL Joan Dietrich Silver	22b. TELEPHONE (Include Area Code) (915) 568-4491	22c. OFFICE SYMBOL PERI-SB

DD Form 1473, JUN 86 *Previous editions are obsolete.*

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

ARI Research Note 91-84

18. SUBJECT TERMS (Continued)

Data collector training strategy
Learning stations

Accession For
NTIS GRA&I ☑
DTIC TAB ☐
Unannounced ☐
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A-1

A TRAINING STRATEGY FOR OPERATIONAL FIELD TEST DATA COLLECTORS

CONTENTS

A TRAINING STRATEGY FOR OPERATIONAL FIELD TEST DATA COLLECTORS

Introduction

This research note describes a training strategy developed and used for video data reduction personnel prior to their participation in the Line-of-Sight-Forward-Heavy (LOS-F-H) Force Development Test and Experimentation (FDTE), Phase II. Although developed expressly for *LOS-F-H FDTE II*, the principles involved may be applied to the training of video data reducers (VDRs) assigned to any type of operational field testing and to the training of data collectors in general. The training strategy is comprised of three phases: (1) system overview training, (2) data collection process overview training, and (3) individualized, job specific training.

Need for Training Data Collectors

Army guidance, the scientific method, and practical experience underscore the need to provide appropriate training for data collectors and to tailor the training to the data collection environment (e.g., field or laboratory). Proper instruction of these personnel facilitates the maintenance of a high quality data collection effort by ensuring that the correct observations and measurements are made with the required precision. Lack of appropriate training increases the probability that the data will be inaccurate and thus lead to incorrect conclusions.

Data collection procedures which yield inaccurate findings are a particular problem for the military when these data are used to make critical decisions regarding system acquisition. The Department of Army (DA) (1976) has published official Army guidance for testing and evaluation. DA Pamphlet 71-3 states that an effective data collection plan is essential to the success of operational field tests and that successful implementation of this plan mandates adequate training for personnel conducting the data collection effort. Adequate training according to this guidance includes, but is not limited to, instruction on the use of instrumentation, data collection procedures, and data reduction and analysis procedures. Furthermore, to be effective, data collectors must be familiar with all aspects of the test, to include: the test purpose and scope, test item characteristics and data management plans.

Further guidance from Haverland (1988) and Meister (1965) suggests that data collectors must be thoroughly acquainted with the equipment under test. Meister advocates special training for data collectors who are unfamiliar with the system. He asserts that, at a minimum, the data collector should be able to name with certainty all the major parts of the system and subsystem with which they are dealing. The data collectors should be able to state the functions performed by the equipment and its operators and know the order in which these functions are to occur.

In addition, Meister (1985) states that everyone involved in the data collection process, including the system experts, should receive training and practice in methods of recording data. Meister (1985) also holds that data collectors must be taught to recognize and record the events which are important to the process. He advocates practicing until the data collectors are comfortable with the procedure. The selection of data collectors prior to

training is critical according to Meister (1965). He cautions that if these personnel are not carefully chosen, they can become the primary source of data contamination.

More specific and, for this paper, more relevant evidence for the need to effectively train data collectors has emerged from the implementation of innovative techniques such as those used for recording operator performance in the confined space of airplane cockpits and armored vehicles. This particular data collection technology has presented a variety of challenges in selecting and training individuals to extract and use the information from video tapes. For example, the Empirically Validated Task Analysis (EVTA) technique is a highly sophisticated procedure which is capable of gathering permanent records of operator activities and internal and external communications. An empirical record of activity times is generated through a computer software program which builds, manages, and analyzes the resulting data base (Shaffer, 1990). According to its developer, the extraction and use of data from the EVTA audio and video records requires a specially selected and trained team.

The Problem

The scientific, practical, and Army guidelines for the selection and training of data collection personnel became very pertinent to the Fort Bliss Field Unit of the Army Research Institute (ARI) early in the summer of 1989. At that time, preparations for the LOS-F-H FDTE II at Fort Hunter-Liggett, CA were in the final stages. FDTE II was a multi-million dollar test of a system which, if it meets its various procurement criteria, will cost billions to produce and field. A Manpower and Personnel Integration (MANPRINT) evaluation of the LOS-F-H system was to be conducted from the data gathered and analyzed during FDTE II. The primary data source for this evaluation was video tape recordings of operator performance. The results of the evaluation would be used by the Office of the Deputy Chief of Staff for Personnel (ODCSPER) as input to the official MANPRINT assessment. A summary of the MANPRINT assessment would be briefed at the milestone decision review (DA, 1987). Clearly then, the quality of the data gathered during the test could significantly impact the future of the system.

Given the importance of the role of the data collectors in the system acquisition process, there was definitely a problem with the existing LOS-F-H FDTE II data collection plan. According to this plan, the only training prescribed for these personnel was a 40-hour system overview course conducted by the prime contractor. While this course provides an excellent overview of the system and fulfills one of the training requirements set forth by Meister (1985) and Haverland (1988), it does not suffice as training for the extraction and use of human performance data from video tape recordings. The first order of business to remedy this situation, therefore, became formulation of a strategy for the appropriate training of the LOS-F-H FDTE II VDRs. Because of the immediacy of the FDTE II, the need for quick action, not elegance, dictated most of the planning directed toward finding a solution to the training dilemma.

The Bigger Problem?

The lack of appropriate training for the FDTE II VDRs held the potential for serious ramifications for the LOS-F-H system. Entering the test situation with only the 40-hour system overview course and without receiving training in accordance with the guidelines set forth by the Army and other experts in the testing and evaluation community could have led to disastrous consequences. The potential repercussions lead one to speculate whether the training problem encountered for this particular test at this particular point in time for this particular system is unique or is pervasive within the testing and evaluation environment. If indeed this problem is not unique to the LOS-F-H FDTE II, then the training strategy to be described may be of some use in framing a solution to the bigger problem.

Description of a VDR Training Strategy

An initial step in devising a training strategy was to identify personnel who could develop and execute a VDR training strategy. Fortunately, the leaders of two key LOS-F-H data collection teams, Performance Video Reduction (PVR) and Battle Drill Analysis (BDA), had the necessary qualifications and were available. Both of these individuals were eager for the opportunity to teach VDRs because each had worked with improperly trained personnel in prior test situations. With the support of these individuals secured, a three phase training strategy was devised. Phase One consisted of the prime contractor's LOS-F-H system overview training. During Phase Two, students received an overview of the data collection process used during operational field tests. Phase Three provided individual data collectors with detailed training for their specific jobs.

Phase One: LOS-F-H System Overview Training

Phase One consisted of the 40-hour system overview course conducted by the prime contractor. This course was a prerequisite for anyone connected with LOS-F-H testing because it provided a basic understanding of system operation. The students in the course were personnel who would fill a variety of roles during FDTE II.

Phase Two: LOS-F-H Data Collection Process Overview Training

Phase Two of the training was designed to provide students with an overview of the operational field test data collection process. This training was conducted by the PVR and BDA team leaders and given concurrently with the LOS-F-H system overview course. Concurrent instruction was possible because much of the system overview training was conducted in the LOS-F-H fire unit. Only two students could be accommodated per fire unit and no more than two fire units were available at any given time. Consequently, most of the class had a considerable amount of "down-time". This time was used by the PVR and BDA team leaders to conduct training at two different learning stations where the relationship among the different data elements was taught. The impact of individual data collection efforts on the rest of the data collection process and on the test objectives also was described at these learning stations.

Students benefitted by having the LOS-F-H system overview course and Phase Two of the VDR training conducted concurrently. Because the tactical fire units were available to the students during this period, they were able to verify system information taught during Phases One and Two, as well as become thoroughly familiar with the equipment.

At Learning Station One, the instructor expanded on the information presented in the Phase One system overview course and showed the students how that information related to the various data collection efforts. The class was taught the difference between "pure" system functions (hardware only) and functions which required the interface of soldier and machine. The group was shown the various system components (e.g., the lights, knobs, switches, and dials) associated with their data collection efforts. They learned to identify the data sources for their jobs and they were taught which specific data needed to be collected to meet test objectives.

Upon completion of each segment of instruction at Learning Station One, students proceeded to Learning Station Two. At Station Two, they were shown how the operator of the LOS-F-H system could have an influence on the various system functions taught at Station One. The students saw that these influences could have either a positive or negative impact on total system performance. They learned that even the absence of data was meaningful because it could indicate that the operator had omitted a required step in a sequence. The importance of human performance, not just equipment performance, was emphasized.

The training received at the two learning stations also provided the students with a knowledge of instrumentation anomalies. This knowledge prepared them to compare information gathered from different sources (e.g., the instrumented fire unit or field test environment and the video tape recordings) and to reconcile any incompatibilities in the data. For example, the students were taught that a careful examination of information available from the video tape recordings of a mission could be used to identify a target engagement that was missed by the real-time casualty assessment system (see TRADOC Test and Evaluation Command Experimentation Center, 1990).

Learning station instructors were provided with the opportunity to correct a variety of misperceptions about data sources. For instance, many of the future test personnel thought that they would be able to directly observe the crew while they were collecting data. The students learned from the instructors, however, that they would be viewing video tapes of the operators taken during missions.

Phase Three: Job-Specific Training

Phase Three of the training was individualized, intense, and job specific. This phase is critical for reliable data collection because it equips the VDRs with the specific skills and attitudes needed to perform their jobs competently. The individualized training was conducted by the PVR and BDA team leaders. It was given subsequent to Phases One and Two and only to those VDRs who would be directly working with the PVR and BDA team leaders.

During Phase Three of the training, future work conditions were simulated by using video tapes from prior tests of the LOS-F-H system. Prospective members of the PVR team viewed tapes to identify and document the actions taken by the system operators. Prospective members of the BDA team used the data recorded by the PVR team and their own viewing of the video tape to synthesize the entire situation, assessing whether the actions taken were correct. If it was determined that LOS-F-H operators had made an error (i.e., had not performed in accordance with prescribed tactics, techniques, and procedures), the BDA video data reducers were required to code the error and to devise a corrective action.

Test Agency Evaluation of the VDR Training

The test agency for the LOS-F-H FDTE II was most concerned that they be able to have confidence in the information they were given by the VDRs. As identified by Laws and Barber (1989), inter-rater reliability became a major issue in video data reduction for the test agency. Consequently, for this LOS-F-H test, all VDRs were required to perform to predetermined criteria after their Phase Three training and prior to their participation in the FDTE. The standards were set by the testing agency, not by the VDR instructors or by ARI.

The test agency was very satisfied with the high quality performance of the individuals who had completed the VDR training program. These students not only met but exceeded the standards exstablished by the test agency. Specifically, prospective members of the PVR team demonstrated that they could correctly reduce a minimum of five video tapes, where the criteria for correctness were established prior to the training. Similarly, future members of the BDA team collectively satisfied previously established inter-rater reliability standards for extraction and use of information from the video tapes.

Student Evaluation of the VDR Training

Method

Students participating in the FDTE II data collection overview (Phase Two) and the job-specific instruction (Phase Three) were asked to evaluate their training. Three separate questionnaires were developed by ARI for this purpose. One questionnaire assessed the training given at the learning stations during the Phase Two data collection overview. The two other questionnaires were administered to students in the PVR and BDA training groups (Phase Three), respectively, at the conclusion of their individualized instruction. All of the questionnaire items were based on the instructors' learning objectives. Copies of the learning objectives and questionnaires are in Appendix A. Summaries of the data obtained with the questionnaires are in Appendix B. The Phase One system overview training was not evaluated by ARI.

Each questionnaire contained a series of items designed to assess student perceptions of their understanding of the material presented during the training. Each questionnaire also contained an item designed to assess the overall value of the training. Students responded to each of these items

using a 7-point scale. A rating of "1" on the scale indicated that the student completely understood the material presented or had great confidence in his or her ability to perform adequately as a result of the training. A rating of "7" on the scale indicated a complete lack of understanding or a complete lack of confidence. A rating of "4" indicated a borderline level of understanding or confidence.

It should be noted that the students who participated in the Phase Three job-specific training are not necessarily the same students who were in Phase Two. Although the training strategy calls for the students to progress in an orderly fashion through the three phases of the training, it was not possible to provide this experience for all the VDRs employed during the LOS-F-H FDTE II. Many of the Phase Three VDR students had taken a session of the 40-hour system overview course prior to development of this training program. Therefore, it was not possible for them to participate in the Phase Two training.

Results of Student Evaluations of Phase Two Training

Student characteristics. Eighteen students, 11 males and 7 females, participated in the Phase Two training. Four of the females and four of the males had prior field test data collection experience. The students' mean age was 37.1 years and their educational levels ranged from high school diploma to graduate level training (see Appendix B).

Student ratings. The mean ratings for the Phase Two questionnaire items reflect a highly positive evaluation of this phase of the VDR training; the mean ratings ranged from 1.8 to 2.9. Students indicated that the training produced an understanding of the issues and relationships inherent in the field test data collection process.

Comparisons of the mean ratings as a function of the prior experience and the gender of the students reveal two meaningful trends in questionnaire responses. When ratings are grouped by the respondent's prior experience, students who had previously served as data collectors indicate a higher level of understanding of the material presented than those with no such experience. When ratings are grouped by gender, females indicate a greater understanding than males for the material addressed.

Hence, while all respondents indicate that the Phase Two training was valuable to their overall understanding of the testing environment, respondents with some prior experience and female respondents indicate more than the others that the training gave them a better understanding of specific aspects of the data collection "process."

Results of Student Evaluations of Phase Three Training

Student characteristics. Two males and five females participated in the training for PVRs, and three males participated in the training for BDAs. All Phase Three students had prior field data collection experience. Those who received the PVR job-specific training were generally younger and had less

formal education than those who received the BDA training (see Appendix B for further details).

Student ratings. The mean ratings for the Phase Three training evaluation questionnaires show the students were very positive about their job specific training. The students indicated that they understood the tasks they were expected to perform and that they were confident in their abilities to adequately perform as VDRs. Specifically, the mean response for the items to be rated in the PVR training questionnaire ranged from 1.2 to 2.1. Mean ratings for the BDA training questionnaire items ranged from 1.0 to 2.3. A breakdown of these training evaluations by the characteristics of the students was not possible due to the small sizes of the two groups who received this training.

SME Opinions on Personnel Selection Criteria

The selection of instructors and personnel for video data reduction is an important consideration in designing a training strategy. Some highly specialized skills are needed to fill the role of instructor but qualifications can differ for VDRs according to the position to be filled. SMEs associated with the LOS-F-H FDTE II constructed a profile of the characteristics they believe necessary for VDR instructors and students. The qualities identified by the SMEs as being essential for competent instructors held no surprises. There were some important differences for VDRs by position, however.

Instructor Requirements

The SMEs agreed that "in the best of all possible worlds" video reduction instructors would have a sincere and dedicated desire to impart the knowledge to their students that will facilitate test conduct. This quality, of course, exemplifies professional behavior. SMEs also agree that instructors must have prior teaching experience and should be able to communicate on a multi-level basis (i.e., to classes comprised of students with varied backgrounds in the military and in the test and evaluation environments). Instructors need to become very familiar with the capabilities and limitations of their students and utilize this knowledge to tailor teaching strategies. Instructors also should have extensive experience with the system being tested, both from a maintenance and an operational perspective. Previous experience in video reduction and data collection is a must, along with an in-depth understanding of test documentation and with test requirements and limitations.

Student Requirements

The SMEs believe that is it necessary for BDAs to have some college education. The analyst must have acquired experience with and knowledge of the weapon system under test or have, at a minimum, an in-depth knowledge of similar or predecessor systems. The analyst should have a background in training, human factors, or MANPRINT. Also necessary is familiarity with the military weapon procurement system, testing requirements, test documentation, and limitations of the specific type system tests (i.e., NDICE, FDTE II,

PVRs, on the other hand, do not need the high levels of specialized skills required by the BDAs. The physical requirements (vision, hearing, etc.) are the same, but PVRs need only a high school education. Otherwise, no special abilities are required.

Discussion

Although an initial training strategy for operational field test VDRs has been developed, there is much work to be done before a final strategy is produced. For instance, inter-rater reliability must be assessed and judged to be adequate after the students have performed their jobs for some extended period of time. For the present effort this assessment was made prior to their work experience only. The same is true of measuring student perceptions of satisfaction with training. Being satisfied with training prior to performing video reduction is one matter but remaining satisfied on the job is another. Administration of student evaluation questionnaires before actual training would provide baseline information of student knowledge. These data could then be compared to ratings given by the students at the conclusion of training for a pretest-posttest comparison. It is also necessary to formulate objective VDR performance standards to be used as an independent gauge of training effectiveness. Continuing satisfaction with training may not necessarily correlate with satisfactory job performance. Using video tapes should facilitate the development of performance standards, however, because the performance of individual VDRs can be matched to tapes. Team leader satisfaction with video reducer performance should also be assessed. Instructors and team leaders need to be surveyed to identify areas for future improvement in the video reduction training.

Finally, it must also be demonstrated that the VDR training strategy employed actually improves the validity and reliability of the data collected and that this improvement provides decision makers with better information. Depicting the benefits realized through improved training will be the telling argument for the success of this or any other training program.

References

U.S. Department of the Army, (1987). Army Regulation 602-2: Manpower and personnel integration (MANPRINT) in the material acquisition process. Washington, DC: U.S. Government Printing Office.

U.S. Department of the Army (DA), (1976). DA Pamphlet 71-3: Force development operational testing and evaluation methodology and procedures guide. Washington, DC: U.S. Government Printing Office.

Haverland, E. (1988, May). Data collection in complex man-machine systems: Workload and performance measurement. Paper presented at the DOD Human Factors Engineering Technical Group Meeting, Baltimore, MD.

Laws, J. V., & Barber, P. J. (1989). Video analysis in cognitive ergonomics: A methodological perspective. Ergonomics, 32, 1303-1318.

Meister, D. (1965). Human factors evaluation in system development. New York: John Wiley & Sons, Inc.

Meister, D. (1985). Behavioral analysis and measurement methods. New York: John Wiley & Sons, Inc.

Shaffer, M. (1990, April). The use of video for empirically validated task analysis. Paper presented at the meeting of the Ergonomics Society, Leeds, United Kingdom.

TRADOC Test and Experimentation Command Experimentation Center, (1990). Test and evaluation plan for the line-of-sight-forward-heavy initial operational test and evaluation. Fort Ord, CA: TRADOC TECOM Experimentation Center.

APPENDIX A

VDR Training Evaluation Questionnaires and VDR Training Objectives

This appendix contains the student training evaluation questionnaires and the training objectives for each of the three types of video data reduction training. The following will assist in the use of this appendix:

LOS-F-H DATA COLLECTOR AND VIDEO REDUCER
TRAINING ASSESSMENT QUESTIONNAIRE

FDTE II has the role of testing tactics, techniques and procedures up to and including the platoon level. The training you received at the learning stations had as one of its purposes fostering an appreciation within the testing community for the interrelationship of the roles played by the various testing organizations during FDTE II. Other goals of the learning station instruction were to give you an understanding of performance, RAM, and battle drill analysis data available through the video reduction process, and to familiarize you with TEC data collection and video reduction instruments. We hope that each of you, experts within your own areas, now have a better idea of how your job affects the testing process, relates to, and affects other areas.

The purpose of this questionnaire is to assess the effectiveness of the training you received at the learning stations. Your responses to this questionnaire will be used to evaluate the learning station instruction for the purpose of improving and upgrading it for future courses.

We have enjoyed working with you and we appreciate the time and effort you have put into the course and into answering this questionnaire.

A. Sex: M F Age _____

B. What is your expected job on the upcoming test?

RAM data collector _____
Performance video reducer _____
Battle drill analyst _____
Analyst _____
Other (please specify) _____

C. Have you ever worked as a video reducer, data collector, or analyst before?

Yes _____ No _____

D. If yes, did you work as a

Data collector _____
Video reducer _____
Analyst _____

E. If yes, what was the name of the system(s) or other equipment on which you worked as a data collector, video reducer, or analyst?

_____

_____

_____

F. What is the highest level of education you have attained?

8 yrs. _____ 9 yrs. _____ 10 yrs. _____
11 yrs. _____ GED _____ High school diploma _____
1 yr. college _____ 2 yrs. college _____
3 yrs.college _____ College degree _____
Graduate training: Yes No

Please use the following code to respond to questions 1 through 11.

1. Very completely
2. Quite completely
3. Fairly completely
4. Borderline
5. Fairly incompletely
6. Quite incompletely
7. Very incompletely

1. I understand the symbology on the thru-sight and PPI.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

2. I understand the engagement sequence file record format.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

3. I understand the sources of data for data elements.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

4. I understand the relationships between sources of data.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

5. I understand the sequence of events which take place during engagement.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

6. I understand the relevance of test data as they apply to live fire.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

7. I understand the relationship between the MANPRINT video reduction forms and the engagement data.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

8. I understand the relationship between MANPRINT video reduction forms and RAM data.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

9. I understand the relationship between MANPRINT video reduction forms and tactics results.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

10. I understand the relationship between MANPRINT and test conduct.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

11. I understand the system through which fixes are made to tactics, techniques and procedures using engagement and MANPRINT data.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

12. I can associate the actions of one battle drill with its impact on another battle drill.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

13. How valuable was the training you received at the learning stations in increasing your understanding of the interrelated roles of the testing community?

1_____2_____3_____4_____5_____6_____7

Very Valuable — Of No Value

COMMENTS: _____

_____

_____

_____

_____

14. Please add any comments which will help us in improving and upgrading this course. Thank you.

LEARNING STATION #1 OBJECTIVES

1. To understand the symbology on the thru-sight and PPI.

2. To understand the engagement sequence file record format.

3. To understand the sources of data for data elements.

4. To understand the relationships between sources of data.

5. To understand the sequence of events which take place during engagement.

6. To understand the relevance of test data as they apply to live fire.

LEARNING STATION #2 OBJECTIVES

1. To understand the relationship between the MANPRINT video reduction forms and the engagement data.

2. To understand the relationship between the MANPRINT video reduction forms and RAM data.

3. To understand the relationship between the MANPRINT video reduction forms and tactics results.

4. To understand the relationship between MANPRINT and test conduct.

5. To understand the system through which fixes are made to tactics, techniques and procedures using engagement and MANPRINT data.

6. To associate the actions of one battle drill with its impact on another battle drill.

LOS-F-H PERFORMANCE VIDEO REDUCER
TRAINING ASSESSMENT QUESTIONNAIRE

The purpose of this questionnaire is to assess the effectiveness of the performance video reducer training. This training represents an effort to upgrade and improve the training received by performance video reducers in previous test situations. Your responses to this questionnaire will enable us to evaluate the performance video reducer training procedures and to make further improvements to the training where necessary. Thank you for your cooperation.

DEMOGRAPHIC INFORMATION

A. Sex: M F

B. Age _____

C. Have you ever worked as a video reducer, data collector or analyst before?

Yes _____ No _____

D. If yes to C, did you work as a

Data collector _____
Video reducer _____
Analyst _____

E. If yes to C, what was the name of the system(s) or other equipment on which you worked?

_____
_____
_____

F. What is the highest level of education you have attained?

8 yrs. _____ 9 yrs. _____ 10 yrs. _____
11 yrs. _____ GED _____ High school diploma _____
1 yr. college _____ 2 yrs. college _____
3 yrs. college _____ College degree _____
What is your degree discipline? _____
Graduate training: Yes No

Please use this code to respond to the questions which follow.

1. Very completely
2. Quite completely
3. Fairly completely
4. Borderline
5. Fairly incompletely
6. Quite incompletely
7. Very incompletely

1. I can differentiate among the various target types (friendly, hostile, ground targets).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

2. I can record the time of initial target detect.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

3. I can identify the target detection system (FLIR, TV, Radar, visual).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

4. I can identify the detector of the target (EO, RO, Driver).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

5. I can identify the source of target information (RDDS, Netted, MSCS, autonomous).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

6. I know what data to use to determine if an aircraft is ingressing or egressing.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

7. I know the 3 codes which apply when trying to identify whether or not the target was on the PPI at initial detection.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

8. I can identify track designations of friend, foe, or unknown on the radar.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

9. I can differentiate between raw and symbolic video.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

10. I can identify the time when handoff is initiated.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

11. I can identify the time of EO handoff completion.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

12. I can identify the time of RO handoff completion.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

13. I can identify the time of EO acquire.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

14. I can identify the time of EO track initiate.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

15. I am aware of aircraft tactics (jinking, direct approach, hovering, running, unknown).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

16. I can record the time of target ID.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

17. I can record the time of the engagement termination.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

18. I can record the reason for early engagement termination using situation codes.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

19. I can record the last event completed before engagement termination.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

20. I know the situation codes for each data element.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

_____

_____

_____

_____

21. Do you feel that sufficient time was allowed for your training as a performance video reducer prior to FDTE II?

Yes _____ No _____

COMMENTS: _____

_____

_____

_____

_____

22. What training, if any, have you received in the past that made this learning experience easier for you?

_____

_____

23. Please rate your confidence in your ability to perform your duties as a performance video reducer based the training you received.

1_____2_____3_____4_____5_____6_____7

Very Confident — Total Lack of Confidence

COMMENTS: _____

_____

_____

_____

_____

24. Please add any additional comments which will assist us in improving and upgrading this training.

PERFORMANCE VIDEO REDUCER LEARNING OBJECTIVES

1. To be able to differentiate among the various target types (friendly, hostile, ground targets).

2. To be able to record the time of initial target detect.

3. To be able to identify the target detection system (FLIR, TV, Radar, visual).

4. To be able to identify the detector of the target (EO, RO, Driver).

5. To be able to identify the source of target information (RDDS, Netted, MSCS, Autonomous).

6. To know the data used to determine if an aircraft is ingressing or egressing.

7. To know the 3 codes which apply when trying to identify whether or not the target was on the PPI at initial detection.

8. To be able to identify the track designations of friend, foe, or unknown on the radar.

9. To be able to differentiate between raw and symbolic video.

10. To be able to identify the time when handoff is initiated.

11. To be able to identify the time of EO handoff completion.

12. To be able to identify the time of RO handoff completion.

13. To be able to identify the time of EO acquire.

14. To be able to identify the time of EO track initiate.

15. To be aware of aircraft tactics (jinking, direct approach, hovering, running, unknown).

16. To be able to record the time of target ID.

17. To be able to record the time of engagement termination.

18. To be able to record the reason for early engagement termination, using situation codes.

19. To be able to record the last event completed before engagement termination.

20. To know the situation codes for each data element.

LOS-F-H BATTLE DRILL ANALYST
TRAINING ASSESSMENT QUESTIONNAIRE

The purpose of this questionnaire is to assess the effectiveness of the Battle Drill Analyst training. This training represents an effort to upgrade and improve the training received by data collectors in previous field test situations. Your responses to this questionnaire will enable us to evaluate the Battle Drill Analyst training procedures and to make further improvements to the training where necessary. Thank you for your cooperation.

DEMOGRAPHIC INFORMATION

A. Sex: M F

B. Age _____

C. Have you ever worked as a video reducer, data collector, or analyst before?

Yes _____ No _____

D. If yes to C, did you work as a

Data collector _____
Video reducer _____
Analyst _____

E. If yes to C, what was the name of the system(s) or other equipment on which you worked?

_____
_____
_____

F. What is the highest level of education you have attained?

8 yrs. _____ 9 yrs. _____ 10 yrs. _____
11 yrs. _____ GED _____ High school diploma _____
1 yr. college _____ 2 yrs. college _____
3 yrs. college _____ College degree _____
What is your degree discipline? _____
Graduate training: Yes _____ No _____

Please use this code to respond to the questions which follow.

1. Very completely
2. Quite completely
3. Fairly completely
4. Borderline
5. Fairly incompletely
6. Quite incompletely
7. Very incompletely

1. I am familiar with all the documents being tested (eg., STP, FMs, PDEPs).

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

2. I am expert in applying the 6 standardized MANPRINT codes.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

3. I am expert in the 9 crew performance categories.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

4. I am a LOS-F-H system SME with regard to maintainer-operator interface.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

5. I am familiar with the test-fix-test concept and the process of evaluating recommended fixes.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

6. I am expert in engagement video reduction.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

7. I am aware of the principles for tactical deployment of the LOS-F-H system.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

8. I am aware of the organizational structure for the LOS-F-H.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

9. I am able to recognize and research the operational effects of operator error.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

10. I know how to trace the source of the operator's required actions during tactical deployment, which includes performance of most battle drills.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

11. I am expert in the procedures required for Prepare for March Order.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

12. I am expert in the procedures required for Emplace and Prepare for Action.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

13. I am expert in the procedures required for Perform Engagement Against Hostile Aircraft.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

14. I am expert in the procedures required for Perform Hasty Engagement Against Hostile Aircraft.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

15. I am expert in the procedures required for Perform Netted Engagement Against Hostile Aircraft.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

16. I am expert in the procedures required for Perform Degraded Mode Against Hostile Aircraft.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

17. I am expert in the procedures required to perform Hangfire or Misfire procedure.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

18. I am able to recognize and evaluate the abbreviated Rearm procedures.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

19. I can define and explain the crew performance error code "Procedure omitted".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

20. I can define and explain the crew performance error code "Procedure performed inaccurately".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

21. I can define and explain the crew performance error code "Procedure performed at the wrong time".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

22. I can define and explain the crew performance error code "Wrong procedure performed".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

23. I can define and explain the crew performance error code "Extra procedure performed".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

24. I can define and explain the crew performance error code "Procedure delay".

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

25. I am able to use all the data provided by multiple sources to determine the focus for recognizing operator interface errors.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

26. I am familiar with applying OTEA priority codes to crew error.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

27. I am able to suggest or recommend corrections to existing tactics, techniques and procedures.

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

28. Do you feel sufficient time was allowed for your training as a Battle Drill Analyst prior to FDTE II?

1_____2_____3_____4_____5_____6_____7

COMMENTS: _____

29. What training, if any, have you received in the past that made this learning experience easier for you?

_____

30. Based on your understanding of what is to be tested at the Fire Unit level, how many people would you estimate are needed to perform your functions for each Fire Unit?

_____

31. Please rate your confidence in your ability to perform your duties as a Battle Drill Analyst based on the training you have received.

1	2	3	4	5	6	7
Very Confident						Total Lack of Confidence

COMMENTS: _____

_____

_____

_____

_____

32. Please add any additional comments which will assist us in improving and upgrading this training.

BATTLE DRILL ANALYST LEARNING OBJECTIVES

1. To become familiar with all the documents being tested (e.g., STP, FMs, PDEPs).

2. To become expert in applying the 6 standardized MANPRINT codes.

3. To become expert in the 9 crew performance categories.

4. To become a LOS-F-H system SME with regard to maintainer-operator interface.

5. To become familiar with the test-fix-test concept and the process of evaluating recommended fixes.

6. To become expert in engagement video reduction.

7. To become aware of the principles for tactical deployment of the LOS-F-H system.

8. To become aware of the organizational structure for the LOS-F-H platoon.

9. To be able to recognize and research the operational effects of operator error.

10. To know how to trace the source of the operator's required actions during tactical deployment, which includes performance of most battle drills.

11. To become expert in the procedures required for Prepare for March Order.

12. To become expert in the procedures required for Emplace and Prepare for Action.

13. To become expert in the procedures required for Perform Engagement Against Hostile Aircraft.

14. To become expert in the procedures required for Perform Hasty Engagement Against Hostile Aircraft.

15. To become expert in the procedures required for Perform Netted Engagement Against Hostile Aircraft.

16. To become expert in the procedures required for Perform Degraded Mode Engagement Against Hostile Aircraft.

17. To become expert in the procedures required to perform Hangfire or Misfire procedure.

18. To be able to recognize and evaluate the abbreviated Rearm procedures.

19. To be able to define and explain the crew performance error code "Procedure omitted".

20. To be able to define and explain the crew performance error code "Procedure performed inaccurately".

21. To be able to define and explain the crew performance error code "Procedure performed at the wrong time".

22. To be able to define and explain the crew performance error code "Wrong procedure performed".

23. To be able to define and explain the crew performance error code "Extra procedure performed".

24. To be able to define and explain the crew performance error code "Procedure delay".

25. To be able to use all the data provided by multiple sources to determine the focus for recognizing operator interface errors.

26. To become familiar with applying OTEA priority codes to crew error.

27. To be able to suggest or recommend corrections to existing tactics, techniques and procedures.

APPENDIX B

Summaries of Student Evaluations of Phase Two Overview Training, Phase Three Performance Video Reducer (PVR) And Battle Drill Analyst (BDA) Training

This appendix contains summaries of the student evaluations of Phase Two and Phase Three training. The following will assist in the use of this appendix:

SUMMARY OF STUDENT EVALUATIONS OF PHASE TWO OVERVIEW TRAINING

Eighteen students responded to the questionnaire--11 males and 7 females. The mean age is 37.13 years, and ages range from 19 to 60 years. The students filled a variety of data collection roles during FDTE II, including reliability, availability, and maintainability (RAM), performance video reducer, and battle drill analyst data collectors. Four males and four females had prior field test data collection experience. Six students hold high school diplomas or the equivalent, six have attended college, three hold college degrees, and three have graduate training.

The items which comprise the phase two questionnaire appear below. They are accompanied by the means and standard deviations for each item, first by gender and then by experience. Mean ratings by gender or by experience that are significantly different are shown by an asterisk In both types of comparisons, the test statistic was the t-test.

Means and Standard Deviations, Combined and by Sex

1. I understand the symbology on the thru-sight and PPI.

	COMBINED	MALES	FEMALES
Mean	2.94	3.00	2.83
SD	.78	.95	.37

2. I understand the engagement sequence file record format.

	COMBINED	MALES	FEMALES
Mean	2.83	2.91	2.67
SD	1.01	1.08	.94

3. I understand the sources of data for data elements.

	COMBINED	MALES	FEMALES
Mean	2.83	3.00	2.50
SD	.83	.74	.96

4. I understand the relationships between sources of data.

	COMBINED	MALES	FEMALES
Mean	2.83	3.09	2.50
SD	.96	.90	.96

5. I understand the sequence of events which take place during engagement.

	COMBINED	MALES	FEMALES	
Mean	2.50	2.45	2.83	
SD	.83	.89	.37	

6. I understand the relevance of test data as they apply to live fire.

	COMBINED	MALES	FEMALES	
Mean	2.22	2.36	2.17	
SD	1.03	.98	1.07	

7. I understand the relationship between the MANPRINT video reduction forms and the engagement data.

	COMBINED	MALES	FEMALES	
Mean	2.78	3.27	2.00	*
SD	1.08	.96	.82	

8. I understand the relationship between MANPRINT video reduction forms and RAM data.

	COMBINED	MALES	FEMALES	
Mean	2.61	2.91	2.17	
SD	1.11	1.08	1.07	

9. I understand the relationship between MANPRINT video reduction forms and tactics results.

	COMBINED	MALES	FEMALES	
Mean	2.56	2.91	2.00	*
SD	.90	.79	.82	

10. I understand the relationship between MANPRINT and test conduct.

	COMBINED	MALES	FEMALES	
Mean	2.50	2.80	2.00	*
SD	.90	.83	.82	

11. I understand the system through which fixes are made to tactics, techniques and procedures using engagement and MANPRINT data.

	COMBINED	MALES	FEMALES
Mean	2.72	2.73	2.83
SD	.99	1.05	.90

12. I can associate the actions of one battle drill with its impact on another battle drill.

	COMBINED	MALES	FEMALES
Mean	2.33	2.09	2.83
SD	.94	.79	1.07

13. How valuable was the training you received at the learning stations in increasing your understanding of the interrelated roles of the testing community?

	COMBINED	MALES	FEMALES
Mean	1.94	2.00	1.83
SD	1.08	1.21	.90

Means and Standard Deviations, Combined and by Experience

1. I understand the symbology on the thru-sight and PPI.

	COMBINED	EXPERIENCE	NO EXPERIENCE
Mean	2.94	2.75	3.20
SD	.78	.43	.87

2. I understand the engagement sequence file record format.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.83	2.25	3.30	*
SD	1.01	.83	.90	

3. I understand the sources of data for data elements.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.83	2.38	3.20	*
SD	.83	.86	.60	

4. I understand the relationships between sources of data.

	COMBINED	EXPERIENCE	NO EXPERIENCE
Mean	2.83	2.50	3.10
SD	.96	.87	.94

5. I understand the sequence of events which take place during engagement.

	COMBINED	EXPERIENCE	NO EXPERIENCE
Mean	2.50	2.50	2.70
SD	.83	.71	.78

6. I understand the relevance of test data as they apply to live fire.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.22	1.75	2.60	*
SD	1.03	.97	.92	

7. I understand the relationship between the MANPRINT video reduction forms and the engagement data.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.78	2.13	3.30	*
SD	1.08	.78	1.00	

8. I understand the relationship between MANPRINT video reduction forms and RAM data.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.61	2.13	3.00	*
SD	1.11	1.05	1.00	

9. I understand the relationship between MANPRINT video reduction forms and tactics results.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.56	2.13	2.90	*
SD	.90	.78	.83	

10. I understand the relationship between MANPRINT and test conduct.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.50	2.13	3.00	*
SD	.90	.93	.63	

11. I understand the system through which fixes are made to tactics, techniques, and procedures using engagement and MANPRINT data.

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	2.72	2.25	3.10	*
SD	.99	.66	1.04	

12. I can associate the actions of one battle drill with its impact on another battle drill.

	COMBINED	EXPERIENCE	NO EXPERIENCE
Mean	2.33	1.88	2.60
SD	.94	.78	.92

13. How valuable was the training you received at the learning stations in increasing your understanding of the interrelated roles of the testing community?

	COMBINED	EXPERIENCE	NO EXPERIENCE	
Mean	1.94	1.38	2.40	*
SD	1.08	.70	1.11	

SUMMARY OF STUDENT EVALUATIONS OF PHASE THREE PERFORMANCE VIDEO REDUCER TRAINING

Eight students responded to the questionnaire--2 males and 6 females. Ages ranged from 19 to 31 years, with the mean age being 25 years. All students had prior field test data collection experience. Two respondents hold high school diplomas and 1 has a college degree. The other 5 have attended college for various periods, but do not hold degrees.

Questions, Means and Standard Deviations

1. I can differentiate among the various target types (friendly, hostile, ground targets).

   Mean 1.74
   SD .83

2. I can record the time of initial target detect.

   Mean 1.38
   SD .48

3. I can identify the target detection system (FLIR, TV, Radar, visual).

   Mean 1.63
   SD .86

4. I can identify the detector of the target (EO, RO, Driver).

   Mean 1.63
   SD .70

5. I can identify the source of target information (RDDS, Netted, MSCS, autonomous).

   Mean 1.88
   SD .78

6. I know what data to use to determine if an aircraft is ingressing or egressing.

   Mean 2.00
   SD 1.00

7. I know the 3 codes which apply when trying to identify whether or not the target was on the PPI at initial detection.

Mean 1.63
SD .70

8. I can identify track designations of friend, foe, or unknown on the radar.

Mean 1.50
SD .50

9. I can differentiate between raw and symbolic video.

Mean 1.63
SD .86

10. I can identify the time when handoff is initiated.

Mean 1.25
SD .43

11. I can identify the time of EO handoff completion.

Mean 1.25
SD .43

12. I can identify the time of RO handoff completion.

Mean 1.25
SD .43

13. I can identify the time of EO acquire.

Mean 1.25
SD .43

14. I can identify the time of EO track initiate.

Mean 1.25
SD .43

15. I am aware of aircraft tactics (jinking, direct approach, hovering, running, unknown).

Mean 1.75
SD .83

16. I can record the time of target ID.

Mean 1.25
SD .43

17. I can record the time of the engagement termination.

Mean 1.50
SD .71

18. I can record the reason for early engagement termination using situation codes.

Mean 1.63
Sd .86

19. I can record the last event completed before engagement termination.

Mean 1.38
SD .48

20. I know the situation codes for each data element.

Mean 2.13
SD .93

Items 21 through 24 were included to evaluate other aspects of the training. A summary of these items, including student comments, follows.

21. Do you feel that sufficient time was allowed for your training as a performance video reducer prior to FDTE II?

Yes: 8 No: 0

Student Comments:

During the one week personal training we were able to ask questions and go through the process of operating the vehicle using layouts.

Fort Bliss training alone would not have been enough. The intensive personal training conducted here at Fort Hunter-Liggett has been most productive.

22. What training, if any, have you received in the past that made this learning experience easier for you?

Video reducer on PMS FDTE II

Video reducer on LOS-F-H FDTE I; training on operating the

LOS-F-H

PMS

Reduction of video on FDTE II

PMS

PMS

PMS

23. Please rate your confidence in your ability to perform your duties as a performance video reducer based on the training you have received.

Mean 1.38
SD .48

Student Comments:

I found the instructor to be very confident in the knowledge he passed on to us in the training of the system. He was also very easy to understand and follow in the training sessions.

I feel that this training will be extremely helpful.

Our instructor is very skilled. This in turn gave us some good "heads up" training. The classes were extremely helpful to me.

The fact that our instructor will be here to answer our questions during video reduction is also a big help.

24. Please add any additional comments which will assist us in improving and upgrading this training.

There is no need to upgrade this training....however, if our instructor is on the test of a new system, send him, he is very good.

Our instructor did a great job!

SUMMARY OF STUDENT EVALUATIONS OF PHASE THREE BATTLE DRILL ANALYST (BDA) TRAINING

Three males, ages 28, 42 and 45 responded to the questionnaire. All had prior experience as field test data collectors. Two hold college degrees and one has had three years of college.

Questions, Means and Standard Deviations

1. I am familiar with all the documents being tested (e.g., STP, FMs, PDEPs).

   Mean 2.00
   SD .82

2. I am expert in applying the 6 standardized MANPRINT codes.

   Mean 1.67
   SD .47

3. I am expert in the 9 crew performance categories.

   Mean 1.67
   SD .94

4. I am a LOS-F-H system SME with regard to maintainer-operator interface.

   Mean 2.67
   SD .47

5. I am familiar with the test-fix-test concept and the process of evaluating recommended fixes.

   Mean 1.33
   SD .47

6. I am expert in engagement video reduction.

   Mean 2.00
   SD .82

7. I am aware of the principles for tactical deployment of the LOS-F-H system.

   Mean 1.67
   SD .94

8. I am aware of the organizational structure for the LOS-F-H platoon.

Mean 1.33
SD .47

9. I am able to recognize and research the operational effects of operator error.

Mean 1.67
SD .47

10. I know how to trace the source of the operator's required actions during tactical deployment which includes performance of most battle drills.

Mean 1.33
SD .47

11. I am expert in the procedures required for March Order.

Mean 1.00
SD .00

12. I am expert in the procedures required for Emplace and Prepare for Action.

Mean 1.67
SD .94

13. I am expert in the procedures required for Perform Engagement Against Hostile Aircraft.

Mean 1.00
SD .00

14. I am expert in the procedures required for Perform Hasty Engagement Against Hostile Aircraft.

Mean 1.67
SD .47

15. I am expert in the procedures required for Perform Netted Engagement Against Hostile Aircraft.

Mean 2.33
SD 1.25

16. I am expert in the procedures required for Perform Degraded Mode Engagement Against Hostile Aircraft.

Mean 1.67
SD .47

17. I am expert in the procedures required to perform Hangfire or Misfire procedure.

Mean 1.00
SD .00

18. I am able to recognize and evaluate the abbreviated Rearm procedure.

Mean 2.00
SD .82

19. I can define and explain crew performance error code "Procedure omitted".

Mean 1.00
SD .00

20. I can define and explain the crew performance error code "Procedure performed inaccurately".

Mean 1.33
SD .47

21. I can define and explain the crew performance error code "Procedure performed at the wrong time".

Mean 1.33
SD .47

22. I can define and explain the crew performance error code "Wrong procedure performed".

Mean 1.33
SD .47

23. I can define and explain the crew performance error code "Extra procedure performed".

Mean 1.33
SD .47

24. I can define and explain the crew performance error code "Procedure delay".

    Mean 1.67
    SD .94

25. I am able to use all the data provided by multiple sources to determine the focus for recognizing operator interface errors.

    Mean 1.67
    SD .47

26. I am familiar with applying OTEA priority codes to crew error.

    Mean 2.00
    SD .82

27. I am able to suggest or recommend corrections to existing tactics, techniques and procedures.

    Mean 1.67
    SD .47

The following questions were included to evaluate other aspects of the training. They are summarized below and student comments are included.

28. Do you feel that sufficient time was allowed for your training as a Battle Drill Analyst prior to FDTE II?

    Yes 3 No 0

29. What training, if any, have you received in the past that made this learning experience easier for you?

    LOS-F-H; Various systems; NDICE, MANPRINT video reduction; PMS data collection and video reduction

30. Based on your understanding of what is to be tested at the Fire Unit level, how many people would you estimate are needed to perform your functions for each fire unit?

    #1 2 people
    #2 2 people
    #3 1 person

31. Please rate your confidence in your ability to perform your duties as a battle drill analyst based on the training you have received.

Mean 1.33
SD .47

Student Comments:

This training depends on the availability of video tapes of all of the battle drills. These tapes were not available or were of such poor quality that it impeded the training.

32. Please add any additional comments which will assist us in improving and upgrading this training.

This training would be greatly enhanced by all the players participating.

The engagement forms that Battle Drill Analysis depends on, the track match to determine A/C available for engagement, and the PCM data need to be available. We were able to participate in only some video training without seeing the entire process in action.